REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The Examiner's references to the abstract appear to be a reference to the published PCT abstract rather than to the abstract of the disclosure already presented on a separate page as part of applicant's Preliminary Amendment filed September 22, 2005. In any event, the abstract has been further amended above so as to place in more traditional U.S. form.

The Examiner's antecedent-based objection to claim 4 at line 14 has been cured by the above amendment.

The Examiner's objection to claim 10, line 22 is not understood--in part because claim 10 as earlier presented did not include 22 lines and in part because the only occurrence of the phrase "the actual" at line 18 occurs some 3 lines after the first occurrence of "actual" which provides antecedent basis for the later recitation of "the actual".

As requested, the amendment to the claims has hopefully avoided all other possible antecedent-basis issues.

The rejection of claims 1-11 under 35 U.S.C. §101 because the claims allegedly "do not appear tangible nor useful since they fail to correspond to real world events with no specific application" and/or because they "appear to be nothing more than software" is respectfully traversed.

Claims 1-9 are apparatus claims including means plus function elements linked to corresponding structure in the specification. At least Figures 8-10 specifically depict hardware components of exemplary embodiments of the claimed analysis system. Figure 8 depicts a

single sensor object where a sensor data stream is captured in memory at 88 and then operated on at blocks 84 and 86 before arriving at sensor interface 82. Similarly, Figure 9 is a block diagram of a sensor group object which includes therefore a sensor interface for plural sensors followed by combination, configuration and analysis before being presented to the analysis interface. Figure 10 depicts an exemplary embodiment of a data analysis unit which includes the first input in the form of the analysis interface to sensor groups 100 and the input means for receiving confirmation information from a operator in the form of the graphical user interface 101. Memory is depicted at 103 and 104 while programmed logic for manipulating the input data and outputting analyzed data results to the GUI are depicted at 102 and 105. Exemplary graphical user interfaces are depicted at Figures 11 and 12 while Figures 13 and 14 provide flow chart descriptions of program logic structure demonstrating the building of a normality model for data analysis and the detection of abnormal conditions using normality models during data analysis according to an exemplary embodiment. Figure 15 illustrates how a normality model of normality models may be formed.

Independent apparatus claims 1 and 2 both require the output of an "abnormality signal" when certain conditions are met. Such is clearly tangible and useful and corresponding to real world events. Since applicant's invention may be applied to numerous specific real world environments, applicant is entitled to generic claims without limitation to some one specific "application".

Independent method claims 10 and 11 also describe tangible and useful method steps corresponding to real world events. Among other things, both of the these method claims require producing an abnormality signal under certain conditions. Once again, since applicant's invention has been disclosed as having application to numerous specific real world systems,

there is no requirement for limiting applicant's claimed invention to one specific such real world application in the absence of prior art teaching the same.

The Examiner's reference to claims 1-10 (but not claim 11?) as being "nothing more than software" is similarly not understood. While computer program logic structures (e.g., as embodied in program logic memory or the like) certainly may be part of the practice of an exemplary embodiment of the applicant's invention, applicant's claims are clearly not directed to "software" *per se*. That is, applicant has not claimed "a computer program written in C comprising statements:...").

The rejection of claims 1-11 under 35 U.S.C. §102 as allegedly anticipated by Tanimura '142 is also respectfully traversed.

Applicant uses a normality model which represents normal behavior of an observed system. The normality model does not depend on the fact that the system states follow a chaotic time series. A normality model can be applied to any (non-random) system. A normality model is not restricted to only short term predictions, because it does not depend on the initial value that was used to create it. It could be trained to predict the system state m steps in the future where m can be any large value. A normality model does not need to be rebuilt constantly, because it has learned to capture the underlying structure and behavior of the monitored system.

An approach based on chaotic inference is not a normality model. It is a short term prediction based on the last n states of the monitored system assuming a chaotic behavior of the system states. Applicant's claimed invention is patentably distinguished from Tanimura, *inter alia*, because applicant's claimed invention uses a normality model. A normality model:

- is more general than chaotic inference
- does not depend on an initial value

- does not make necessary assumptions about the nature of the data
- represents the true structure and behavior of the monitored system and not only the last n observed states
- is not restricted to short term predictions

In particular, applicant's claimed normality model is derived (in part) from "confirmation information". According to claim 1, after "first input means" has received "characteristic data" from the monitoring system, "second input means" receives "confirmation information" from an operator **when the dynamic system is in a known <u>normal</u> state**. The claimed "normality modeling means" then derives the normality model in response to the characteristic data and the confirmation information. Nothing in Tanimura corresponds to the claimed "receiving confirmation information from a operator when the system is in a known normal state". Tanimura therefore cannot possibly derive a normality model in dependence on 'confirmation information" so received—and, it is thus impossible as a matter of law for Tanimura to anticipate any of applicant's independent claims (and thus similarly impossible for Tanimura to anticipate any dependent claim).

The independent claims have now also been amended:

> first in input means for receiving characteristic data from the monitoring system indicative of a state of the dynamic system;
> second input means for receiving confirmation information from an operator in n the event that said operator considers the dynamic system to be in a known normal state, said confirmation information being associated with said characteristic data, and said confirmation information indicating that said operator considers the dynamic system to be in a known normal state:...

It is thus even more explicit that the only question the operator must answer is "Is the current state normal?" The claimed system is capable of deriving the normality

model as long as it receives some confirmation information from an operator relating to normal conditions, and it can then use the normality model to detect abnormal conditions without the need to have received confirmed knowledge from an operator about abnormal conditions or what types of abnormal conditions the system is supposed to be "on the look-out for".

The Examiner quotes "difference equation, column 2, line 33" of Tanimura as allegedly teaching applicant's difference function. However, applicant's difference function is used to determine if the prediction of a future state is sufficiently different from the actual future state in order to justify classification as an abnormal state. The difference equation in Tanimura is actually a deterministic differential equation used to describe determination chaos, i.e., it is a function from which one can compute all future states as long as one knows the initial state and the system is chaotic. Therefore, Tanimura's "difference equation" has nothing to do with applicant's difference function-except use of a similar name, to describe a completely different concept.

To assist the Examiner's analysis, it is noted that if one is trying to draw an analogy to applicant's difference function, the "monitoring section" Tanimura mentions in column 1, line 62 Might relate to a more similar concept.

The Examiner also attempts to relate applicant's "second input means" to column 3, line 31 of Tanimura. However, in this excerpt, Tanimura describes only the process of the process data--and does not refer to the feedback from an operator.

Accordingly, this entire application is believed to be in allowable condition and a formal Notice to that effect is respectfully solicited.

Respectfully submitted,

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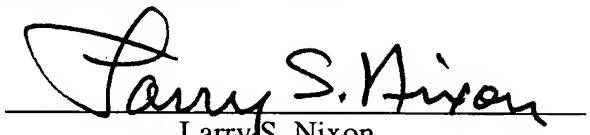
By: 

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